Yinfeng Lu

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EDUCATION

University of Chicago — Chicago, IL
M.S. Computer Science | software engineering specialization — *Sept. 2023 – Dec. 2024*

University of Pennsylvania — Philadelphia, PA
M.A. Mathematics | GPA: 3.83/4.0 — *Aug. 2021 – May 2023*

University of California, Berkeley — Berkeley, CA
B.A. Mathematics, B.A. Physics | GPA: 3.928/4.0 — *Jan. 2018 – May 2021*
Honor: High Distinction in General Scholarship

EXPERIENCE

Shen Lab, Research Assistant — Aug. 2022 – May 2023
University of Pennsylvania, Perelman School of Medicine | Learn More — *Philadelphia, PA*
- Co-developed a robust **automated** mass-cytometry data pre-gating pipeline in **Python** with the **PyTorch** framework, incorporating techniques of **machine learning** and **computer vision**.
- Leveraged libraries including **numpy**, **pandas**, and **matplotlib** for efficient data manipulation and visualization.
- Achieved an excellent average accuracy exceeding **93%** on data from **65** patients.
- Brought an over **80%** increase in research team efficiency for pipelined data processing.

Experimental CMB Cosmology Group, Research Assistant — Jan. 2019 – July 2019
UC Berkeley, Departments of Physics & Astronomy — *Berkeley, CA*
- Participated in POLARBEAR-2b (astronomical telescope) construction and testing.

PROJECTS

Genomics Annotation Service | *Python, Flask, HTML, AWS, Boto3 |* Learn More — Jan. 2024 – Mar. 2024
- Implemented a robust and scalable **backend** architecture for a **distributed** SaaS application deployed on **AWS**, using **Flask** as web framework and **Boto3** to interact with AWS.
- Utilized multiple AWS services including **S3** for persistent storage of user input files and result files, **DynamoDB** for efficient management of job details, **SES** for notification email delivery, **Glacier** for file archive, **SNS** and **SQS** for a **publish-subscribe pattern** that facilitates asynchronous communication between different servers, improving system scalability and performance.
- Implemented **tiered user access** (free & premium) that allows upgrading via Stripe test API.

LAN Connect | *C++, Qt, Network Programming |* Learn More — July 2023 – Jan. 2024
- Implemented a **TCP-based** messaging and file transfer **desktop application** with **C++** and **Qt framework**, utilizing a **client-server architecture** and self-devised application-layer protocol.
- Employed a **layered architecture** to facilitate development, promoting modularized construction of both server and client applications.
- Enhanced **user experience** through the integration of various features such as typing status indicator, availability statuses, and username selection.

Berkeley Map | *Java, Spark, Algorithms and Data Structures |* Learn More — June 2022 - July 2022
- Implemented three key **backend functionalities** for a web map application: map rastering, map construction (graph building), and route searching.
- Utilized a wide range of **algorithms and data structures** including rasterization, breadth-first search (BFS), A*, graph (for map representation), trie (for autocomplete suggestions), and more.

Responsive Personal Website | *HTML, CSS, JavaScript |* Visit — Mar. 2024 – present
- Implemented a **responsive** personal website with vanilla **CSS** and vanilla **JavaScript**.

SKILLS

Languages: C++, C, Java, Python, JavaScript, HTML/CSS, SQL
Frameworks: Qt (C++), PyTorch, Flask, Boto3
Development: Linux Bash, Git, Makefile, Docker, AWS, JUnit, Redis, MongoDB
Currently Learning: Networks, Architecture Patterns and Enterprise Integration Patterns, Web Development